Bettersize Instruments Unveils BeNano 180 Zeta Max: A New Era in Nanoparticle Analysis for Advanced Research and QA/QC

BeNano 180 Zeta Max integrates 14 advanced measurement modes for nanoparticles, colloids, and macromolecules into one compact and intuitive analytical system.

BeNano 180 Zeta Max

BeNano 180 Zeta Max Close-up

COSTA MESA, CA, UNITED STATES, September 22, 2025 / EINPresswire.com/ -- Bettersize Instruments, a leading global provider of particle characterization solutions, proudly announces the launch of the BeNano 180 Zeta Max, the most comprehensive nanoparticle analyzer in the BeNano Series. Offering an unprecedented 14-in-1 measurement capability, this state-of-the-art instrument is designed to meet the evolving demands of nanotechnology, life sciences, materials research, pharmaceuticals, and advanced industrial formulation.

The BeNano 180 Zeta Max marks a significant technological milestone, unifying critical nanoparticle, colloid, and macromolecule measurement techniques into a single, compact, and intuitive platform.

Learn More

UNLOCK GREATER RESEARCH POTENTIAL — WITH BENANO

The BeNano 180 Zeta Max empowers users to perform highly precise measurements on a wide range of physical and physicochemical parameters, including particle size, zeta potential, molecular weight, microrheological behavior, refractive index, concentration, and more. By

combining multiple techniques into one device, researchers and quality control professionals can streamline workflows, reduce cross-instrument variability, and enhance data reliability across every stage of product development.

14-IN-1 MEASUREMENT MODES — A COMPLETE ANALYTICAL TOOLKIT IN ONE INSTRUMENT
Designed to offer holistic sample analysis, the BeNano 180 Zeta Max integrates the following 14 advanced measurement modes:

 Particle Size (Dynamic Light Scattering): 90° DLS and backscattering DLS optics enable accurate size determination across 0.3 nm to 15 μm, with auto-optimization for concentrations up to 40% w/v.

 Zeta Potential
The advanced Phase Analysis Light Scattering (PALS) technology ensures precise zeta potential measurements, even for samples with low mobility, high salinity, or near isoelectric points.

 Molecular Weight
Based on Static Light Scattering (SLS), the system calculates weight-average molecular weight (Mw) and the second virial coefficient (A2), essential for polymer and protein characterization.

 Microrheology
DLS-based microrheology provides rapid, non-invasive assessment of viscoelastic properties (G', G", η*, creep compliance), ideal for dilute and weakly structured fluids.

 Flow Mode
Enables inline detection when coupled with separation systems (GPC/SEC, FFF), allowing high-resolution size distribution of polydisperse and multicomponent samples.

 Temperature Trend Analysis
Fully programmable from -15 °C to 120 °C with ±0.1 °C accuracy, allowing study of thermally sensitive samples, protein denaturation, or formulation stability under stress.

 VV Polarizer
Enhances the signal-to-noise ratio by using only vertically polarized light.

 VH Polarizer
Collects only horizontally polarized light and provides information on the rotational motion of anisotropic particles.

 Fluorescence Filter
Eliminates background fluorescence in dye-labeled or naturally fluorescent samples, improving scattering signal detection and accuracy.

 Refractive Index
Using a patented wedge-shaped cuvette and 0° detection, the BeNano determines the refractive index of both aqueous and organic solvents across 1.2–1.6 RI range.

 Concentration
LED Light Scattering (LEDLS) measures both particle number and volume concentration without requiring calibration, covering 1×10^8 – 1×10^{12} particles/mL.

 Sedimentation Particle Sizing
Based on gravitational settling, this mode measures micron-sized particles (1–50 µm), delivering volume-based results comparable to laser diffraction.

 Transmittance
Detects changes in sample transparency to monitor stability, flocculation, or batch variability in real-time.

 Autotitration (pH Control)
The BAT-1 autotitrator enables automated pH titration (range 1–13), generating zeta potential, size, and conductivity vs. pH curves, and determining isoelectric points with high precision.

SCIENTIFIC PRECISION MEETS OPERATIONAL SIMPLICITY
The BeNano 180 Zeta Max is equipped with advanced software that supports full automation, real-time monitoring, SOP-based workflows, and regulatory data integrity features compliant with 21 CFR Part 11, ISO 13321, ISO 22412, and ISO 13099. An integrated BAT-1 autotitrator with optional triple-channel degasser further enhances lab productivity by reducing operator involvement and minimizing error.
Key specifications:
 Measurement Range: 0.3 nm – 15 µm (DLS), 1 µm – 50 µm (Sedimentation)
 Zeta Potential: Unlimited range with conductivity up to ≥270 mS/cm
 Sample Volume: As low as 3 µL
 Temperature Range: -15 °C to 120 °C (±0.1 °C control)
 Laser Source: 50 mW, 671 nm Class 1
 Detectors: Avalanche photodiode (APD) and CMOS for 0° detection

APPLICATIONS ACROSS INDUSTRIES
The BeNano 180 Zeta Max is tailored for research and QA/QC in:
 Biopharmaceuticals: protein aggregation, nanoparticle drug delivery, liposome characterization
 Advanced materials: quantum dots, graphene dispersions, metal oxides
 Cosmetics and food: emulsion stability, micelle and colloid behavior
 Polymer science: molecular weight and viscoelastic profiling
 Environmental and chemical analysis: particle-laden samples, zeta stability in varied pH or ionic conditions

ABOUT BETTERSIZE INSTRUMENTS
Founded in 1995, Bettersize Instruments Ltd. is China’s premier manufacturer of particle size, shape, and zeta potential analyzers. Serving over 80 countries worldwide, Bettersize is recognized for combining innovation with usability—enabling researchers and manufacturers to enhance material performance, optimize formulation stability, and accelerate time-to-market.

Explore the full BeNano Series and product brochure at:
https://www.bettersizeinstruments.com/products/benano-180-zeta-max/

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